USE OF SEQUENCERS FOR EME SYSTEMS

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I have received inquires in the past several months about how to use and install a sequencer for EME system use.

With the following information I hope preamp & RX relay failures' are cured and happy EME'ing results. Of course the RX relay must have suitable isolation so TX rf does not damage the preamp.

Here is my method, their may be better ways, but I have never lost a preamp or RX relay since this wiring has been installed.

Most sequencers that are being used and sold can be wired in the same way.

On the Sequencer I use you will see the dip switch for setting relays ON/OFF condition in receive, the POT is the time sequence (adjust for the slowest event change) for each time change both UP/DOWN count.

I do it as follows, RX to TX. transciever PTT to sequencer.

1. (A) PREAMP protect RX relay OFF, switch preamp into 50 ohm dummy load and keep preamp powered up is best during TX.

2. POWER AMP turn on PTT and TX relay on if used.

3. DRIVER amp ON if used. or also any other power up or off as your system needs.

4. TRANSVERTER PTT on, this I always do last. In my case I only have 10 MW of drive to transverter input.

On the preamp, the protect RX relay 24 volt unit, I always have power to "receive" coax relay. SET DIP SWITCH ON SEQUENCER FOR THIS.

I added a 220 ohm 2 watt with a 220 Mfd across the resistor in the relay + voltage supply lead. This reduces the heat dissipated in the relay during receive,

I found that the heat would damage the relay if full voltage was applied continuously. What I did was set up the relay on the work bench, with a current VOM meter, measured the full voltage current, using a ohm meter I measured the contact resistance from the common to the receive port connector. Then I reduced the current/voltage with a poteneometer and observed the start of any resistance change to contact before relay dropped out of contact.

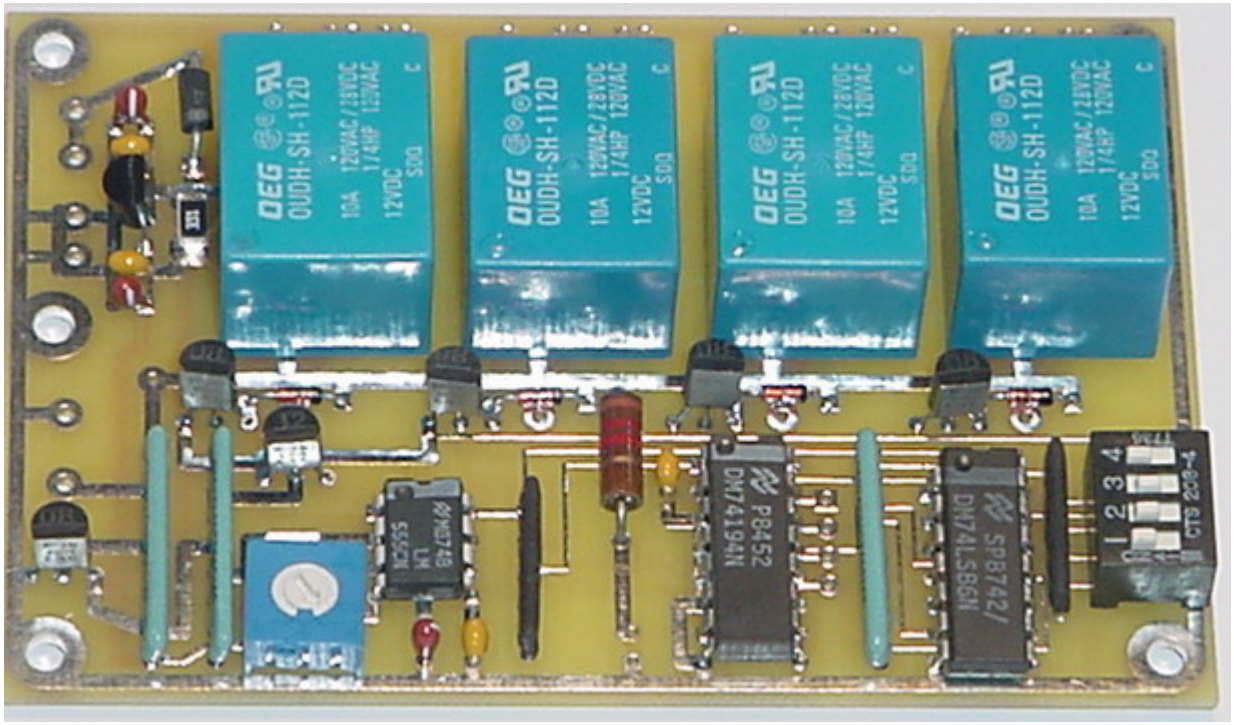
Then I increased the voltage/current about 20% higher than the ohm change point, add the resistor/capacitor to the + lead of the resistor value. This will apply full voltage to the relay when

voltage is first applied, capacitor will bleed down to the hold current so relay is just warm and is undamaged in continuous use. Have used system there for years and never have lost any RX relays or ever have lost a preamp here.

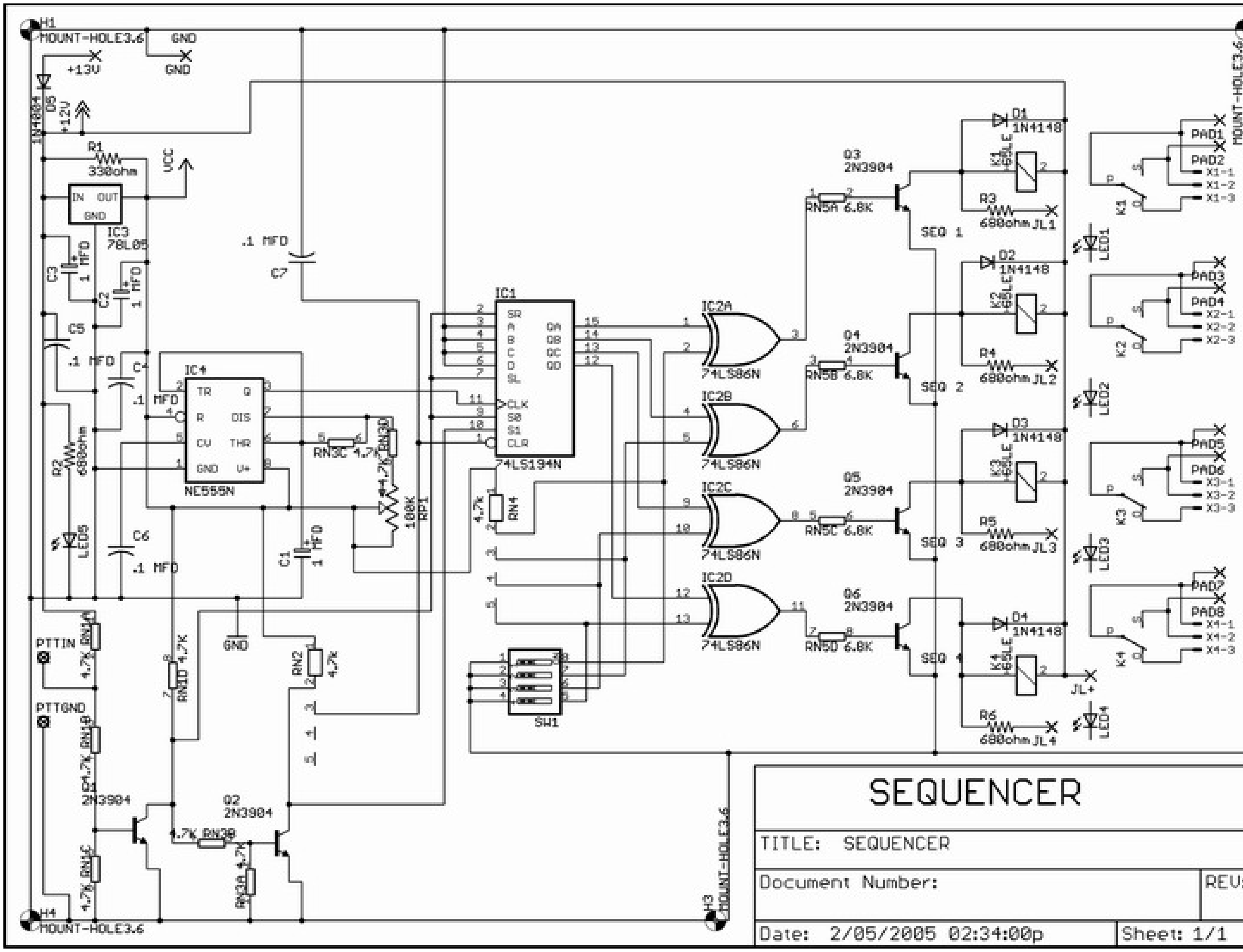
I use a HB9BBD cavity preamp (.27 db @ 38 db gain) here for 3 years just fine.
TX power out in shack is 600 watts, 250 to 300 watts at feed horn, 3db loss in coax (200 feet to dish).>
Take a look at the unit below.
http://www.w2drz.ramcoinc.com/Sequencers.htm

SEQ-1 RELAY SEQUENCER

This is the SEQ-1 relay sequencer board. It is the same size as our other boards so it will fit into the ENC-2 Enclosure. It requires a power supply of +12 volts, and a PTT input line that goes to ground to activate the relays. The output relays are normally open until sequenced, but the 4 position slide switch can be used to reverse the sense of each relay individually. The outputs are solder pads along the top, just above the relays in the picture. See below for the schematic.



Schematic of the SEQ-1 board. (See below for a larger schematic).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